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JUIL.
2023

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19h30

2023-T2 HIGHER STRUCTURES IN GEOMETRY AND MATHEMATICAL PHYSICS

Higher Structures in Geometry and Mathematical Physics

Institut Henri Poincaré, Paris
Amphitheater Darboux
11, rue Pierre et Marie Curie
75005 Paris

INSCRIPTION

Higher structures, in particular homotopy algebras, have appeared in many branches of mathematics and particularly in mathematical physics ranging from deformation theory, derived geometry, enumerative geometry, representation theory, homotopy algebras, Poisson geometry and quantization, mirror symmetry, noncommutative algebraic geometry, string theory and quantum field theory. This IHP trimester aims to promote interaction between mathematicians, physicists and groups working on related areas from different aspects. It brings together leading experts and young researchers in these subjects to address the important questions.

Scientific committee

URL de la page : https://www.ihp.fr/fr/agenda/higher-structures-geometry-and-mathematical-physics&is_pdf=true

- Kai Behrend (University of British Columbia)
- Barbara Fantechi (Scuola Internazionale Superiore di Studi Avanzati)
- Camille Laurent-Gengoux (Université de Lorraine)
- Mathieu Stiénon (Pennsylvania State University)
- Ping Xu (Pennsylvania State University)

Main activities

Introductory School at CIRM in Luminy (April 17th-21st)

https://conferences.cirm-math.fr/2697.html

Orateurs:

- Christian Brouder (Sorbonne Université) : “The physical origin of the Batalin-Vilkovisky formalism”
- Barbara Fantechi (SISSA) : “Derived deformation theory”
- Rajan Mehta (Smith College) : “A gentle introduction to graded geometry”
- Mauro Porta (Strasbourg) : “Introduction to derived algebraic geometry”
- Thomas Willwacher (ETH Zürich) : “Hopf algebras, modules, and deformation theory”

Three main conferences

For more details, click "Scientific Programme" in the sidebar.

- May 22nd-26th : GAP XVIII: Homotopy algebras and Higher Structures. https://ulysses8791.github.io/gap2023.html
- June 12th-16th : Higher Structures in Enumerative Geometry. https://ulysses8791.github.io/june2023.html
- July 3rd-7th : Dg-manifolds in Geometry and Physics. https://indico.math.cnrs.fr/event/7885/
- + July 10-11+Higher structures à la Glanonaise, *En mémoire de notre ami et plus grand supporteur Jacky Michéa* https://ulysses8791.github.io/glanon2023.html

Several mini-courses

==live stream at https://www.ihp.fr/fr/live-0 **==**

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- Benoit Fresse : Operads, Graph complexes, and Grothendieck-Teichmuller groups (May 3rd, May 10th, May 17th, frm 2pm to 4:30pm). *((May 3d : General introduction, Introduction to Operads, May 10th : Rational homotopy. Sullivan models, May 17th : Applications : relation with GT. Embedding Calculus.))*
- Bernhard Keller : Derived categories and Hochschild cohomology (May 15th. June 5th, June 19th, from 3:30pm to 5:30pm)
- Emily Riehl, Elements of oo-category theory, June 21st, 23rd 3-5pm.
- Olivier Schiffmann : Cohomological Hall algebras in dimensions one and two and applications. May 2,4,9,11,15,17 from 10am to 12am
- Camille Laurent-Gengoux, Mathieu Stiénon, Ping Xu: Introduction to Dg-manifolds and vector fields commuting with themselves, April 24-26, 10-12am April 28 9:30-11am,
- Ping Xu, Higher Structures and dg-manifolds, May 2nd 3-5:15 pm, May 3rd, 11-12am.
- Mathieu Stiénon, Duflo-Kontsevich Theorem by Mathieu Stiénon (II), May 4th 3-5pm, May 5th, 11am.
- Boris Tsygan : June 6 th June 9th 15:30-17:00 Gauss-Manin connection in noncommutative geometry.

Seminars :

Please check "Ordre du Jour" for exact schedule.

April 28th May : Serguei Merkulov, Amphi Darboux,Gravity properad, moduli spaces M_g,n, and string topology

May 5th : not related to our trimester, but Anton Alekseev speaks at 4:30pm.

https://www.ihp.fr/fr/agenda/poisson-brackets-and-flat-connections

May 15th 11am, Vladimir Salnikov

June 5th ; Lander Hermans,

June 14th : FInski Siarhei,

June 16th, , Andrey Lazarev.

June 26th, : Dmitry Roytenberg,

June 28th : Ricard Campos, Alex Takeda, Giovanni Felder

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July 10th : Markus Pfaum :"Homological reduction as a tool in deformation quantization and anapplication in the quantization of a lattice gauge model"

Other events

June 26th-27th-28th : Lectures and workshop about "Singular foliations and dg-manifolds", co-organised by Laurent-Gengoux and Leonid Ryvkin.

June 30rd : One-day workshop on "Geometry and Analysis at the foundations of QFT"

May 30th, 3pm Adrian Ocneanu will give a lecture for general public : Lois mathématiques, structure mathématique, et théorie quantique des champs



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HORAIRES

L'institut :
• lundi au vendredi de 8h30 à 18h,
• fermé les jours fériés.

Le musée - Maison Poincaré :
• lundi, mardi, jeudi et vendredi
de 9h30 à 17h30,
• samedi de 10h à 18h,
• fermé le mercredi et le dimanche.